Measuring and Assessing Online Store Image: A Study of Two Online Bookshops in the Benelux

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Abstract

The objectives of the research project described in this paper are (1) to develop reliable and valid measures for the components of online store image, and (2) to examine the influence of these components on the intention to purchase online. Conceptually, the project relies on the relatively established literature on "traditional" store image and the emerging electronic commerce literature seeking to discover the antecedents of online purchase intention. Empirically, we focus on two popular online bookstores in the Netherlands and Belgium.

The process of instrument development put forward by Churchill (1979) was adopted. We conducted two rounds of data collection (pilot sample, n = 61, one online bookstore; main sample, n = 312, two online bookstores) and use a combination of exploratory and confirmatory statistical techniques to assess reliability and validity.

The paper eventually presents multiple-item measurements for the following components of store image: Online Store Usefulness (6 items), Enjoyment (3 items), Ease of Use (6 items), Store Style (4 items), Familiarity (3 items), Trustworthiness (3 items) and Settlement Performance (8 items). All measures are unidimensional and contain acceptable alphas. The components are then regressed on online purchase intention, revealing significant, direct influences from Usefulness, Enjoyment, Trustworthiness and Settlement Performance. Second order influences of the other components are investigated and reported. The paper compares these results with similar results in the literature and concludes with contributions and limitations of this particular project.

1. Introduction

Generating revenue using an online store is one of the key issues facing electronic commerce practitioners today. For this reason, the factors influencing the intention to purchase *online* are beginning to be explored by marketing and IS researchers. These factors include trust and perceived risk [12] as well as website usefulness and ease of use [3]. So far, relatively little attention has been paid to the *image* of the online store. Despite this lack of attention, we propose that online store image is an important predictor. In empirical marketing studies, several researchers have been able to successfully link "Store Image" to "Intention to Purchase" (e.g. [8, 18]).

"Store image" is a multi-faceted construct that has been rigorously researched for "traditional" stores (see in particular [6, 11, 13, 15, 16]). In an online environment however, the existing measures of this construct are no longer adequate. For example, they contain inappropriate items such as "shop cleanliness" and "shop crowdedness". Also, items that would be important in an online store such as logistical settlement and privacy issues are not included. Therefore, to obtain a meaningful measurement instrument for online store image, there is a need to adapt the existing measurement instruments of "traditional" store images. The objectives of the research project described in this paper are (1) to develop reliable and valid measures for the components (dimensions) of *online store image,* and (2) to examine the influence of these components on the intention to purchase online.

The research questions in this project are:

1. What are the conceptual dimensions (components) of online store image?
2. What items can be used to measure each of these conceptual dimensions?
3. Are the items reliable and valid measures? Do they withstand the standard reliability and validity tests?
4. How strong are the relationships between the components of store image and online purchase intention?

The focus in this project is on online stores in the business to consumer (*B2C*) market, selling *rangible* consumer products (books, DVDs, and the like), using the Internet as their *only* distribution Channel. This focus was motivated by the resemblance of these types of online stores to the traditional high street stores, for which the existing store image instruments were developed in the first place.

2. Theoretical foundations

To develop an appropriate measure for online store image, we rely on the relatively established literature on "traditional" store image and the emerging electronic commerce literature seeking to discover the antecedents of online purchase intention.

Store image is defined as the "personahty" the store presents to the public or "a complex of meanings and relationships serving to characterize the store to the populace." [11]. Consumers perceive stores on a number of dimensions, usually called *components*, which collectively make up store image [11].

Kelly and Stephenson [13] were among the first to explicitly develop the instrumentation for retail store image. They propose the use of the *semantic differential*, a bipolar scale containing opposing adjectives at the scale extremes (e.g. *high quality* products – *low quality* products). 51 items are developed with the following dimensions: genera], physical, convenience, products, prices, personnel, advertising and opinion of friends. Based on this and other work, Lindquist identified nine factors in his seminal work on the meaning of image [15]. Dickson and Albaum [6] refined both instrumentations for retail store image, and they uhimately arrived at the following dimensions: prices, products, store layout and facilities, service and personnel, promotion and "others." An instrument containing 29 items (also semantic differentials) was developed and analyzed on reliability and validity.

Since then, retail image has grown in popularity as a predictor for numerous variables, including attractiveness of a shopping area [18] and purchase intention [8]. Not surprisingly, store image also functions as an important dependent variable. Antecedents such as store atmospherics [1] and store name [8], among others, have been subject to study.

The antecedents of an individual's intention to purchase online are likely to contain elements that are related to online store image. Jarvenpaa et al. have investigated empirically the relationship between Intention to Shop Online, Attitude towards Shopping Online and Trust in the Online Store [12]. Chau et al. have conceptually linked Usefulness and Ease of Use of the Internet to Attitude and Intention to Purchase Online [3]. An experiment, relating both Jarvenpaa et al.'s constructs and Chau et al.'s constructs to Online Purchase Intention, was carried out by Heijden et al [10]. These and other studies demonstrate that Attitude towards Purchasing is influenced by Perceived Risk, and that Trust in Store influences Attitude through its impact on Perceived Risk.

The Intention to *Purchase Online* is a construct which is conceptually very similar to the Intention to *Use a System*. Some authors have examined the antecedents of this well known Technology Acceptance Model construct (TAM; [5]) in a World Wide Web context (e.g. [7, 14. 17]). For example. Lederer et al. distinguish

the factors Ease of Understanding, Ease of Finding and Information Focus as antecedents of Ease of Use, and Information for Support, Primary Activities, Management, R&D, and Information Quality as antecedents of Usefulness [14].

3. Research methodology

Following calls from [20] and [2] to increase efforts on the reliability and validation of the instruments used in IS research, we have adopted the well-known process of instrument development put forward by Churchill [4]. Table 1 illustrates the nine steps used in this process.

Table 1 Measurement development process [4]

Step	Description
1	Specify domain of construct
2	Generate sample of items
3	Collect data
4	Purify measure
5	Collect data
6	Assess reliability
7	Assess validity
8	Develop norms

As a starting point, we took the "retail image" construct from Dickson and Albaum. We then undertook a series of focus group sessions with a sample of 10 people. Three of the participants were electronic commerce practitioners. The remaining seven included IS faculty (two) and marketing faculty (five) from an academic institution. In the focus groups, the participants were asked to comment on the applicability of the Dickson/Albaum items in an electronic commerce context, and to suggest new items that would apply to the image of an onhne store. This resulted in a draft questionnaire containing 38 items.

A sample of 61 respondents (friends and colleagues) was personally approached for a pilot test of the instrument (Step 3 in Churchill's process). They were asked to study the Dutch version of the online bookstore Bol.com (located at URL: www.nl.bol.com). Bol was chosen because according to several e-commerce trade magazines, Bol is the market leader in online book selling in the Netherlands, with a market share of 50% (October 2000). After the subjects had studied the bookstore. they were asked to fill in the pilot test survey. The survey also included measurement scales for Attitude towards Purchasing Online and

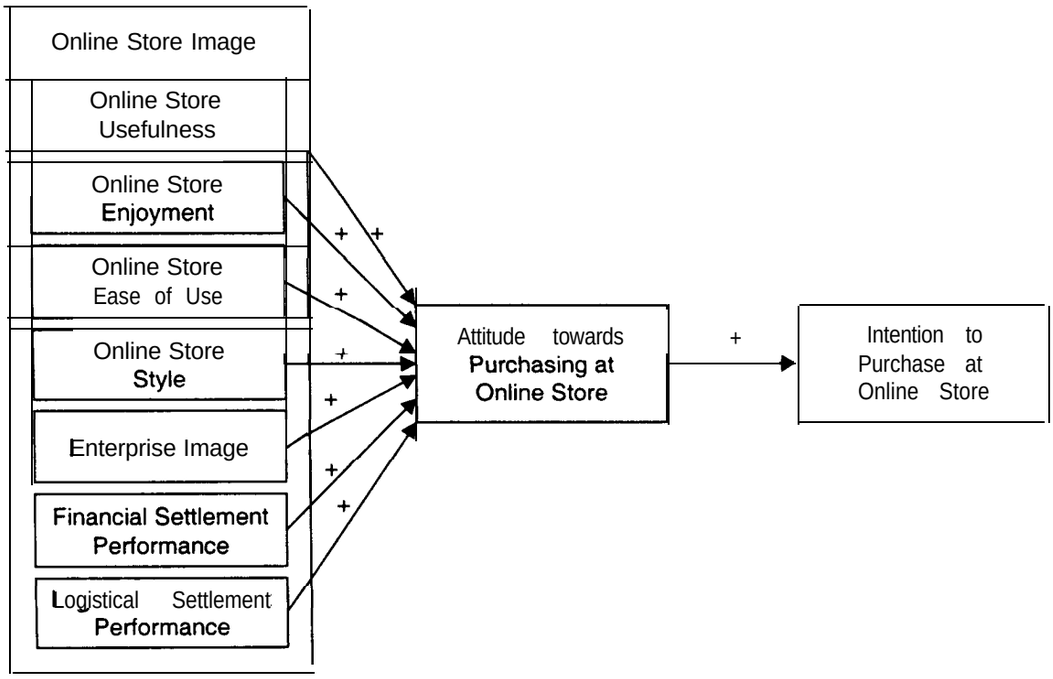
Intention to Purchase Online. We took the scales for Attitude and Intention from [10], who slightly modified the scales from [12].

Using the data from the opportunistic sample, we studied the reliability and validity of the measurement scales to "purify the measures" (step 4 in Churchill's process). Exploratory factor analysis (common factor analysis with maximum likelihood, and oblimin rotation) was employed to reveal if every component was measuring one and only one construct. We split the scales into the number of identified factors if this was not the case. We then computed Cronbach alphas for each of the measures.

The resulting components were named as follows: online store usefulness (6 items), online store enjoyment (3 items), online store ease of use (3 items), online store style (5 items), enterprise image (5 items), logistical settlement performance (5 items) and financial settlement performance (3 items). All measures are unidimensional and contain acceptable alphas (>0.60, cf. [19]). Seven items were dropped.

Figure 1 contains the model after the pilot study.

Figure 1 Preliminary model of Online Store Image, Attitude and Intention after pilot study



For the second round of data collection (Step 5 in Churchill's process), we conducted a lab experiment with a student sample. This sample consisted of 312 undergraduate students taking the mandatory core information systems course in the economics curriculum. Each student had to study two websites. One was

the Dutch version of the online bookstore BOL, and the other one was the online bookstore Proxis from Belgium (www.proxis.be). After the student had studied a website, he or she had to fill in the questionnaire, and move on to the next. 50% of the students started out with BOL and then moved to Proxis, 50% started out with Proxis and then moved to BOL. All respondents were being monitored by a supervisor in the lab.

4. Results

Table 2 displays key descriptives about the sample.

Table 2 Descriptives of tbe second sample (n = 312)

	Count	Percent
Gender		
Male	202	64.7%
Female	110	*35.3%*
Internet Experience (self reported)		
Very inexperienced	3	1.0%
Inexperienced	8	2.6%
Neutral	81	26.0%
Experienced	179	57.4%
Very experienced	41	13.1%
History of buying a product on the web		
Never	182	58.3
Once	47	15.1
Twice	24	7.7
Three times	15	4.8
Four times or more	44	14.1

Factor analysis was employed on the data for the Dutch bookshop to explore once again if every component was measuring one and only one construct. For most of the constructs, we dropped one or two items to improve reliability. Somewhat surprisingly, we had to drop "high price / low price" from "Store usefulness" to keep its reliability acceptable and the scale unidimensional. This item also had no correlation whatsoever with Attitude towards Purchasing Online (R^2 = 0.00). We believe that this can be explained by the relatively smal1 price differences between the two bookshops (and between bookshops in the Netherlands in

general, as the Dutch govemment fixes the prices for most new books). Consequently, the Dutch may not be overly price-sensitive in their decision where and how to buy.

An exploratory factor analysis on "Enterprise Image" revealed that this construct was best split in two scales. We named them "Store familiarity," defined as the extent to which the online store is perceived to be well-known, and "Store trustworthiness", defined as the extent to which the online store is perceived to be a reliable business partner.

"Financial settlement performance" was our worst performing construct (original alpha was 0.56). We obtained acceptable measures by grouping the items for logistical performance and financial performance again (as, incidentally, we had originally intended).

We validated the resulting components with the data from the Belgian bookshop using exploratory factor analysis. This confirmed that all our measures were now unidimensional. Table 3 displays the Cronbach alphas for both data sets, which are all above the 0.60 threshold for exploratory research. The translated instrument is provided in an appendix to this paper.

Table 3 Cronbach Alphas for each measure (n = 312), for two websites

Component name	Number of items	Value for Dutch online booksho p	Value for Belgian online bookshop
Store usefulness	6 (one dropped)	0.71	0.68
Store enjoyment	3 (one dropped)	0.91	0.90
Store ease of use	6	0.83	0.86
Store style	4 (two dropped)	0.71	0.78
Store famiharity	3 (one dropped)	0.76	0.85
Store trustworthiness	3	0.78	0.70
Store settlement performance	8 (combined)	0.75	0.79
Attitude towards Purchase at Online Store	3	0.91	0.93
Intention to Purchase at Online Store	4	0.86	0.89

TO illustrate the prediction validity of the constructs, the factor scores were regressed on Attitude, and Attitude was regressed on Intention. The regression results are shown in Table 4.

Table 4 Multiple regression results when regressing the Image Components on Attitude, and Attitude on Intention (n = 312)

	R^2	Adjusted R^2	Beta
Intention = Attitude + Errors	0.60***	0.60	
Attitude			0.78***
Attitude = Usefulness + Enjoyment + Ease of Use + Style + Familiarity + Trust + Settlement + Errors	0.31***	0.30	
Online Store Usefulness			0.21***
Online Store Enjoyment			0.15**
Online Store Ease of Use			0.03 (n.s.)
Online Store Style			-0.09 (n.s.)
Online Store Familiarity			-0.07 (n.s.)
Online Store Trustworthiness			0.22***
Settlement Performance			0.25***

*** = $p < 0.005$, ** = $p < 0.05$

As can be seen from this table, four out of seven components of store image contribute to attitude towards purchasing online. These are in order of relative importance: perceived settlement performance, store trustworthiness, store usefulness, and store enjoyment. Three components do not have a sufficiently strong relationship with attitude towards purchasing online. These are in order of appearance: ease of use. store style, and store familiarity. To be sure, it is possible that these components have a second or higher order effect on attitude. We will examine the possibilities of higher order effects of these three components in more detail.

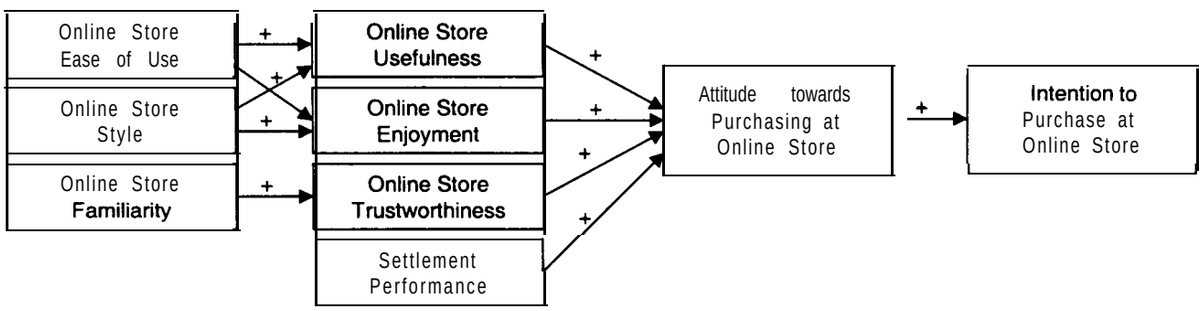
Empirical research on TAM in the context of electronic commerce (in particular [7] and [10]) suggests that ease of use is an antecedent of usefulness and enjoyment, rather than a direct antecedent of attitude towards purchasing. This is supported by our data too. We did found a strongly significant influence of ease of use on usefulness (R^2 = 0.28, $p < 0.001$; Beta Ease of Use = 0.53, p < 0.001). as well as an influence of ease of use on enjoyment (R^2 = 0.23, $p < 0.001$; Beta Ease of Use = 0.48, p < 0.001).

It is conceivable that store familiarity is an antecedent to trust. Perhaps the familiarity of a store helps to build trust in the store (as indicated for instance by [12]). However, our data supports this only to a very modest extent (R^2 = 0.06, $p < 0.001$; Beta Familiarity = 0.25, p < 0.001). The predictive power of the regression variate is not overly convincing in this respect.

Finally, it is defensible to argue that store style may impact perceptions of store usefulness and store enjoyment. For example, a knowledgeable style can influence the feeling that the website is informative (and by definition, that the store is useful). Similarly, a personal style may stimulate the feeling that the website is a pleasure to browse through (and by definition, that the store is enjoyable). We conducted regressions with ease of use and store style as independent variables, and usefulness and enjoyment as dependent variables. Indeed, usefulness seemed to be influenced by both items (R^2 = 0.34, $p < 0.001$; Beta Ease of Use = 0.38, $p < 0.001$, Beta Style = 0.29, $p < 0.001$), and so did enjoyment (R^2 = 0.27, $p < 0.001$; Beta Ease of Use = 0.35, $p < 0.001$, Beta Style = 0.24, $p < 0.001$).

The resulting model is displayed in Figure 2.

Figure 2 Final model of Online Store Image, Attitude, and Intention after main study



5. Discussion

We believe this research has made a number of contributions to the existing body of research on online purchasing. In the first place, we have developed measures for seven relevant constructs related to online store image. The measures contain multiple items and have been subject to standard reliability and validity tests. Therefore, we encourage researchers to use them "as is" in their own research.

Second, we have provided results that relate each of these components to the attitude towards purchasing online. These results both reconfirmed and disconfirmed similar empirical research. They *reconfirm* the importance of trust in the store (as found by [12]). It should be noted that we have a more reliable measure of trust than [12]. (alpha is 0.70 vs. 0.56). Second, they *disconfirm* the non-importante of usefulness (as found by [10]). This may seem remarkable given the similarity in research design. We attribute the difference to the

dissimilarity in measurement of store usefulness. This is a weakness in the prior study that the authors themselves have acknowledged.

Third, we have demonstrated the importance of two new constructs, store enjoyment and perceived settlement performance in predicting online purchase behavior. To our knowledge these constructs have not yet been empirically connected to the attitude towards purchasing online (although enjoyment has been empirically linked to Attitude towards Using a Website, see [9]). Researchers are encouraged to expiore these variables in more detail, as their impact on sales seems certainly of importance.

A number of limitations are inherent to the results presented here. These include the relatively low predictive power of the regression variate, the generalizability of the results, and the validity of the second order hypotheses. Each of these limitations will now be discussed in more detail.

The components of store image were able to explain 31% of the variance in "Attitude towards purchasing online". While certainly satisfactory, this leaves 69% of the variance unexplained. Clearly, other factors need to be taken into account to predict attitude towards purchasing online more fully. We believe that researchers should recognize that the purchasing decision occurs 1. at various levels and 2. in multiple stages. In other words, people decide not only to purchase or not, but also *where* to purchase, *when* to purchase, and *how* to purchase. In this research we have focused on two of these decisions: *how* to purchase (i.e. online) and *where* to purchase (i.e. either at the Dutch or at the Belgian online bookshop). It is likely that factors that influence the decision *whether* to purchase and *when* to purchase also contribute to the attitude towards these purchasing decisions. For example, the decision *whether* to purchase or not is influenced by an individual's immediacy of the need, his or her purchase priorities, and his or her financial position. The decision *when* to purchase is likely to be influenced by similar factors. None of these are directly related to online store image, and therefore none of these were included in the model. We suspect many of those are accountable for the remaining 69% of the variance. We encourage researchers to examine these factors more fully, as well as their impact on the diverse "subdecisions" related to purchasing. In the long run, we envision a comprehensive model of purchasing online taking into account the antecedents of multiple purchase decisions, organized in multiple levels of decision making.

There is also an issue with the applicability of the results to electronic commerce stores in general. We certainly believe that the data is representative for Benelux online bookshops. Also, we do not believe that the data is unrepresentative of online bookshops in genera]. However, it is likely that the product under study (a book) is moderating the various relationships between online store components and attitude and intention to purchase. A book is a *low-involvement good. High involvement* goods such as pianos, mortgages and intercontinental flight tickets are likely to have a more severe impact on. for example. the relationship between trustworthiness and attitude to purchase. These goods simply require more trust before one is willing

to make the purchase decision. Hence, we recommend researchers to replicate these studies with stores specifically selling high involvement products. It will be useful and relevant to identify whether the relationships between the store components and the decision to buy are of similar strength.

A last limitation of the research is the validity of the second order hypotheses from Figure 2. To be sure, these hypotheses should be interpreted with extreme caution. It may be that we are optimizing on variance specific to the data set.

6. Conciusions and recommendations

This research project has focused on online store image and the influence of online store image on the intention to purchase online. Conceptually, we have examined the literature on retail store image. Through the use of a literature review, focus groups and a pilot study, a preliminary measurement instrument was developed. This instrument was then used in a main study. Using the data from this study, we refined the instruments until seven components of online store image emerged. We then linked each of these components to attitude towards purchasing online and online purchase intention. Four of them showed statistical signiftcance, three of them did not. We suggested second order effects in line with previous theory, and examined these effects empirically.

At least two conclusions can be derived from this project. In the first place, our results demonstrate that the image related factors can only explain a minor portion of the attitude towards purchasing online (approx. 30% of the variance). From the viewpoint of the online store these results are fairly discouraging. It appears that the attitude towards purchasing online is mostly explained by unique, personal factors. To be sure, the store image can tilt the balance towards purchasing online, provided the person is already inclined to buy a product. However, we recommend researchers to move beyond store image related constructs and work on those unique factors. There is stil1 a lot we do not know about the motivations and considerations to purchase online.

Second, our results demonstrate that store familiarity and store style have only weak relationships with online purchasing. This has important implications both for research and practice. For practice, it suggests that money spent on increasing store familiarity and store style is not likely to have a substantial impact on online sales. Stores are better off making their websites more useful and enjoyable, and increasing their trustworthiness and their settlement performance. Indeed this research provides solid support for clear priorities in the marketing budget. For researchers, these results point out that the impact of store familiarity and store style are inconclusive at best. We need more research on these constructs and on their relationships with important dependent variables in the online world.

While online stores are important and sometimes highly visible representatives of the "new economy", to date they do not enjoy a great deal of sound empirical research. A lack of solid measurements that are applicable to online stores certainly impedes any effort into building a cumulative research tradition. We believe that the measurement instruments developed in this paper will assist researchers in making these efforts, and we hope that future research using these instruments can bring useful insights to society at large.

Measurement scales

Each of the measures uses a bipolar Likert scale (also known as a semantic differential). The response categories were: Very, Quite, Some, Neutral, Some, Quite, Very.

Online Store Usefulness

- Hard to find the books 1 need --- Easy to find the books I need
- Little information about the books --- Much information about the books
- Limited choice of books --- Wide choice of books
- Little value for money --- A lot of value for money
- Uninteresting offers --- Interesting offers
- Bad alignment with my interests --- Good alignment with my interests

Online Store Enjoyment

- Boring site --- Fun site
- Little pleasure to browse through - great pleasure to browse through
- Unattractive site --- Attractive site

Online Store Ease of Use

- Hard to use --- Easy to use
- Unorganized layout --- Organized layout
- Bad representation of the books --- Good representation of the books
- Hard to navigate the site --- Easy to navigate the site
- Inflexible site --- Flexible site
- Hard to leam how to use the site --- Easy to leam how to use the site

Online Store Trustworthiness

- Does not keep my personal data confidential --- Does keep my personal data confidential
- Bad reputation --- Good reputation
- Unreliable enterprise --- Reliable enterprise

Online Store Style

- Unhelpful --- Helpful
- Unfriendly --- Friendly
- Less knowledgeable --- Very knowledgeable
- Impersonal --- Personal

Online Store Familiarity

- Infrequently seen advertisements on the Internet --- Frequently seen advertisements on the Internet
- Infrequently seen advertisements outside the Internet --- Frequently seen advertisements outside the Internet
- Unknown enterprise --- Well known enterprise

Online Store Settlement

- Slow delivery --- Fast delivery
- Limited choice of delivery options --- Wide choice of delivery options
- Unreliable delivery --- Reliable delivery
- Bad service --- Good service
- Hard to return books --- Easy to return books
- Slow financial settlement --- Fast financial settlement
- Unsafe financial settlement --- Safe financial settlement
- Limited choice of payment options --- Wide choice of payment options

Attitude towards Purchasing Online (measured on a 7-point Likert scale from Strongly Disagree to Strongly Agree)

- 1 am positive towards buying a <product> on the <name> website.
- The thought of buying a <product> at the website of <name> is appealing to me.
- 1 think it is a good idea to buy a <product> at the website of <name>.

lntention to Purchasing Online (measured on a 7-point Likert scale from Highly Unlikely to Highly Likely)

- How likely is it that you would return to the <name> website?
- How likely is it that you would consider the purchase of a <product> at the <name> website in the short term?

- How likely is it that you would consider the purchase of a <product> at the **<name>** website in the long term?
- How likely is it that you would consider the purchase of a <product> at the **<name>** website if you need the <product>?

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